

REMARKS

Claims 1-43 and 60 are pending in this application. Of these, claims 1, 14, 27, 28, 38, and 60 are independent. Claims 44-59 and claim 62 have been cancelled. Favorable reconsideration and further examination are respectfully requested.

Initially, claims 17, 18 and 35 were objected to, and claims 44-50, 52-59 and 60 were rejected under 35 U.S.C. § 112, second paragraph, for the reasons noted on page 2 of the Office Action. As shown above, the claims have been amended to attend to these objections and rejections. Accordingly, withdrawal thereof is respectfully requested.

Turning to the art rejections, claims 1, 14, 44-50, and 52-59 were rejected under 35 U.S.C. 102(b) over Goldfain (U.S. Pat. 6,065,837). Claims 38, 42, 53, and 51 were rejected under 35 U.S.C. 103(a) over Nanjo (U.S. Pat. 5,742,374). Claims 60 and 62 were rejected under 35 U.S.C. 102(b) over Ueno (U.S. Pat. 6,139,151). Claims 6-8, 11-13, 19-21, and 24-27 were rejected under 35 U.S.C. 103(a) over Goldfain. Claims 4, 5, 17, and 18 were rejected under 35 U.S.C. 103(a) over Goldfain and Takahashi (U.S. Pat. 4,453,808). Claims 9, 10, 22, and 23 were rejected under 35 U.S.C. 103(a) over Goldfain and Shipp (U.S. Pat. 5,471,237). Claims 2, 3, 15, and 16 were rejected under 35 U.S.C. 103(a) over Goldfain and LeVantine (U.S. Pat. 3,984,157). Claims 28-30 and 33-36 were rejected under 35 U.S.C. 103(a) over Goldfain, Takahashi, and Shipp. Claims 31, 32, and 37 were rejected under 35 U.S.C. 103(a) over Goldfain, Takahashi, Shipp, and LeVantine. Claims 39-41 were rejected under 35 U.S.C. 103(a) over Nanjo and Shipp. Claim 61 was rejected under 35 U.S.C. 103(a) over Ueno.

As shown above, Applicants have amended the claims to define the invention with greater clarity. In view of these clarifications and the arguments below, reconsideration and withdrawal of the art rejections are respectfully requested.

Claim 1, as amended, recites "A retinal imaging system comprising a light source; optics which receive light from the light source and which transmit the light to produce a beam that is substantially convergent, the beam entering an eye along a first axis ... and an imaging device that receives imaging rays produced by a reflection of the beam from the retina, wherein the imaging rays exit the eye along a second axis that is separate and different from the first axis."

Goldfain is not understood to disclose or to suggest the foregoing features of claim 1. In this regard, there is nothing in Goldfain that discloses or suggests that the imaging rays exit the eye along a second axis that is separate and different from a first axis along which the beam enters the eye. Goldfain, by contrast, discloses an ophthalmoscope in which the light entering the eye travels along the same path as the light exiting the eye. FIGS. 1A, 1B, and 2 of Goldfain and the accompanying text of col. 3, lines 29-40, show the path of light entering the eye to be the same as the path of the imaging rays that leave the eye. In particular, the passage of Goldfain at col. 3, lines 29-40 states:

An important aspect of the imaging system is that illumination source 24 is disposed in the receive optical path. In particular, source 24 is disposed at or in proximity with imaging axis 26, which during examination of a patient, is approximately coincident with the optical axis of a patient's pupil 30. Providing a source 24 in an optical receive path at or in proximity with imaging axis 26 enables improved illumination of a patient's retina. However, disposing a light blocking object in an optical receive path, by definition, also unavoidably blocks a certain amount of received light and thereby diminishes the ability of an imaging system to transmit an image to the retina.

Clearly, in Goldfain's imaging system, the light entering and exiting the eye share the same axis. This could be disadvantageous in that it may result in "foggy" images at an imaging camera.

Nanjo, Ueno, Takahashi, LeVantine, and Shipp are not understood to remedy the foregoing deficiencies of Goldfain regarding claim 1, particularly with respect to the imaging rays exiting the eye along a second axis that is separate and different from a first axis along which a beam of light enters the eye.

More specifically, Nanjo describes a fundus camera in which the optical axis of the light entering the eye is coaxial to the optical axis of the light leaving the eye. As shown in FIGS. 2 and 6, accompanying text in col. 4, lines 23-27 of Nanjo, the illumination path traversed by the light reflected from the beam splitter 17 is coaxial to the imaging path traversed by the light reflected from the eye: "Reference numeral 16 denotes a projective lens, reference numeral 17 denotes a beam splitter which makes an optical axis of the illumination/target projection system be coaxial with an optical axis of the observation/photographing optical system that mentioned below." Clearly, in Nanjo, the beam of light enters the eye along the same axis as the reflected light exits the eye.

Ueno discloses an imaging system in which the paths of the light entering and leaving the eye are coaxial. For example, FIG. 5 of Ueno shows that the illumination path traversed by the light reflected from the beam splitter 50 is coaxial to the imaging path traversed by the light reflected from the eye. In FIG. 6, and accompanying text in col. 9, lines 41-56 of Ueno show that the light delivered to the fundus and the light reflected from the fundus share the same axis. In particular, the passage at col. 9, lines 41-56 states:

The combined light beams are projected to the eye E through a projection lens 75, beam splitters 76 and 77 disposed on the optical axis of the first light delivery optical system ... The light for measurement reflected by the fundus of the eye E passes through the beam splitter 77 and is reflected by the beam splitters 76 and 78 in turn to pass through relay lenses 79 and 81.

Takahashi also discloses an imaging system in which the optical axis of the light entering the eye is coaxial to the optical axis of the light leaving the eye. As shown in FIG. 1 of Takahashi, between the eye E and the splitter 9, the path of light traveling from the light emitter 102 to the eye E overlaps the path of the reflected light exiting the eye. Thus, the light entering and exiting the eye share the same axis.

LeVantine, as well, discloses a coaxial ophthalmoscope in which the optical axis of the light entering the eye is coaxial to the optical axis of the light leaving the eye. As shown in FIG. 2 and the accompanying description in col. 4 of LeVantine, the axis 36 along which light from light source 22 enters the eye is the same axis along which reflected light exits the eye.

Shipp discloses an endoscope in which light is propagated through fibers to illuminate an object. There is nothing in Shipp that discloses or suggests using the endoscope as an ophthalmoscope to image an eye. Accordingly, Applicants submit that Shipp is non-analogous art.

Claims 14, 27, 28, 38, and 60 recite limitations that are similar to the limitations of claim 1. Accordingly, for at least the foregoing reasons, claims 14, 27, 28, 38, and 60 are believed to distinguish over Goldfain, Nanjo, Ueno, Takahashi, LeVantine, and Shipp.

Each of the dependent claims is also believed to define patentable features of the invention. Each dependent claim partakes of the novelty of its corresponding independent claim and, as such, has not been discussed specifically herein.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claims, except as specifically stated in this paper, and the amendment of any claims does not necessarily signify concession of unpatentability of the claim prior to its amendment.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney can be reached at the address shown below. All telephone calls should be directed to the undersigned at 617-521-7896.


The fee for the three-month Petition for Extension of Time in the amount of \$510.00 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization (06 1050). Please apply any other charges or credits to Deposit Account No. 06 1050, referencing Attorney Docket Number 10276-085001.

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Respectfully submitted,

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